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10/707,871	01/20/2004	Ling-Yi Liu	IFTP0001USA	1870

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EXAMINER
UNELUS, ERNEST

ART UNIT	PAPER NUMBER
2181	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/27/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *01/20/04*.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-95* is/are pending in the application.

   4a) Of the above claim(s) *54-77* is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-53 and 78-95* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *20 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1. ☐ Certified copies of the priority documents have been received.

   2. ☐ Certified copies of the priority documents have been received in Application No. _____.

   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

FRITZ FLEMING
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100
12/12/2006

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date *03/02/06*.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

Election/Restrictions

1.   Applicant's election without traverse of invention I, claims 1-53, and 78-95, in the reply

filed on November 03, 2006, is acknowledged.

2.   The instant application having application No. 10/707,871 has a total of 95 claims.

Invention II, claims 54-77 has been withdrawn from consideration and claims 1-53, and 78-95

are now pending in the application; within claims 1-53, and 78-95, there are 4 independent

claims and 66 dependent claims, all of which are ready for examination by the examiner.

I. INFORMATION CONCERNING OATH/DECLARATION

Oath/Declaration

1.   The applicant's oath/declaration has been reviewed by the examiner and is found to

conform to the requirements prescribed in **37 C.F.R. 1.63.**

II. INFORMATION CONCERNING DRAWINGS

Drawings

1.   The applicant's drawings submitted are acceptable for examination purposes.

III. ACKNOWLEDGEMENT OF REFERENCES CITED BY APPLICANT

1.   As required by **M.P.E.P. 609(C)**, the applicant's submissions of the Information

Disclosure Statement dated March 02, 2006 is acknowledged by the examiner and the cited

references have been considered in the examination of the claims now pending. As required by

M.P.E.P 609 C(2), a copy of the PTOL-1449 initialed and dated by the examiner is attached to

the instant office action.

IV. OBJECTIONS TO THE CLAIM

1.   **Claims 5 and 31** are objected to because of the following informalities: "a detachable

canister" is not discloses in the applicant's specification. The examiner will assume that "a

detachable canister" to be physical storage device.

2.   As per **claims 47, 48, 84 and 85**, the abbreviations "SES and SAF-TE" are not clearly

disclose in the applicant's specification. Applicant does not stated what "SES" or "SAF-TE"

stands for.

3.   As per **claims 18 and 39**, the abbreviations "ISCSI" is not clearly disclose in the

applicant's specification. Applicant does not stated what "ISCSI" stands for.

V. REJECTIONS NOT BASED ON PRIOR ART

Claim Rejections - 35 USC § 112

1.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and
> distinctly claiming the subject matter which the applicant regards as his invention.

2.   **Claims 11 and 25**, are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

3.   As per **claims 11 and 25**, the limitation "...... interconnect controller<u>s</u> " (line 1) renders

this claim as vague and indefinite. Claim 11 is dependent on claim 9, which discloses one

controller. Claim 11 can't refer to two controllers if the claim that it depends on discloses only

one controller. This makes claim 11 unclear. The same applied to claim 25.

VI. <u>REJECTIONS BASED ON PRIOR ART</u>

<u>Double Patenting</u>

4.   The nonstatutory double patenting rejection is based on a judicially created doctrine
grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or
improper timewise extension of the "right to exclude" granted by a patent and to prevent possible
harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is
appropriate where the conflicting claims are not identical, but at least one examined application
claim is not patentably distinct from the reference claim(s) because the examined application
claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g.,
In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29
USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re
Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ
619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).
        A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may
be used to overcome an actual or provisional rejection based on a nonstatutory double patenting
ground provided the conflicting application or patent either is shown to be commonly owned
with this application, or claims an invention made as a result of activities undertaken within the
scope of a joint research agreement.
    Effective January 1, 1994, a registered attorney or agent of record may sign a terminal
    disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR
    3.73(b).

5.   **Claims 1-53, and 78-95 is** provisionally rejected under the judicially created doctrine of

obviousness-type double patenting as being unpatentable over claims 1-62 of copending

application No. 11/246,268.

6.   Initially, it should be noted that the present application and Application No. 11/246,268,

share one common inventor, which is Michael Schnapp. The assignee for both applications is

Infortrend Technology, Inc. The examiner also notes that neither the instant application nor U.S

application 11/246,268 were the subject of a restriction by the office.

7.   Claimed subject matter in the instant application is fully disclosed in the referenced

copending application and would be covered by any patent granted on that copending application

since the referenced copending application and the instant application are claiming common

subject matter, as noted below. *See In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir.*

1993).

8.   Furthermore, there is no apparent reason why applicant would be prevented from

presenting claims corresponding to those of the instant application in the other copending

application. See MPEP § 804.

9.   Claim 1 is compared to claims 1 of application 11/246,268 in the following table:

Instant Application	**Application 11/246,268**
A storage virtualization computer system comprising: a host entity for issuing IO requests; an external storage virtualization controller coupled to said host entity for executing IO operations in response to said IO requests; and at least one physical storage device(PSD), each coupled to the storage virtualization controller through a point-to-point serial-signal interconnect, for providing storage to the storage virtualization computer system through the storage virtualization controller (claim 1)	A patch module comprising: A computer system comprising: a host entity for issuing IO requests; a redundant external storage virtualization controller (SVC) pair for performing IO operations in response to IO requests issued by the host entity comprising a first and a second external SVC coupled to the host entity; and a set of at least one physical storage device (PSD) for providing data storage space to the computer system, with at least one member of said set of at least one PSD comprising a PSD coupled to the said redundant SVC pair through a point-to-point serial signal interconnect for transmission with SAS protocol;

	wherein when one SVC in the said redundant SVC pair is not on line or goes off line after being on line, the alternate SVC in the said redundant SVC pair will automatically take over the functionality originally performed by the said one SVC in the redundant SVC pair (claim 1)

This is a provisional double patenting rejection since the conflicting claims have not yet been patented. The double patenting rejection is also applicable to other claims in the instant application and application 11/246,268.

10.   **Claim 1** is also provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-49 of copending Application No. 11/246,309.

11.   Initially, it should be noted that the present application and Application No. 11/246,309, share one common inventor, which is Michael Schnapp. The assignee for both applications is Infortrend Technology, Inc. The examiner also notes that neither the instant application nor U.S application 11/246,309 were the subject of a restriction by the office.

12.   Claimed subject matter in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common

subject matter, as noted below. *See In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993).*

13. Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See MPEP § 804.

14. Claim 1 is compared to claims 1 of application 11/246,309 in the following table:

Instant Application	Application 11/246,309
A storage virtualization computer system comprising: a host entity for issuing IO requests; an external storage virtualization controller coupled to said host entity for executing IO operations in response to said IO requests; and at least one physical storage device(PSD), each coupled to the storage virtualization controller through a **point-to-point serial-signal** interconnect, for providing storage to the storage virtualization computer system through the storage virtualization controller (claim 1)	A storage virtualization computer system comprising: a host entity for issuing IO requests; an external storage virtualization controller coupled to said host entity for executing IO operations in response to said IO requests; and at least one physical storage device (PSD), each coupled to the storage virtualization controller through a **SAS** interconnect, for providing data storage space to the storage virtualization computer system through the storage virtualization controller (claim 1)

This is a provisional double patenting rejection since the conflicting claims have not yet been patented. The double patenting rejection is also applicable to other claims in the instant application and application 11/246,309.

Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

16.   **Claims 1-16, 20-37, 41-46, 50, 78-83, 86-88, and 90-94,** are rejected under 35

U.S.C. 102(e) as being anticipated by Bicknell et al. (US pub. 2003/0193776).

17.   As per **claims 1, 21, 78, and 90**, Bicknell discloses "A storage virtualization computer

system **(system 100 of fig. 6)** comprising: a host entity for issuing IO requests **(Host computer**

of fig. 6); an external storage virtualization controller **(controller 1)** coupled to said host entity

for executing IO operations in response to said IO requests **(see fig. 6 and paragraph 0029)**; and

at least one physical storage device (PSD) **(Disc drive 106.1 of fig. 6)**, each coupled to the

storage virtualization controller through a point-to-point serial-signal interconnect **(see fig. 6 and**

paragraph 0019), for providing storage to the storage virtualization computer system through

the storage virtualization controller **(see paragraph 0027)**.

18.   As per **claims 2, 22, 79, and 91**, Bicknell discloses "The storage virtualization computer

system of claim 1" **[See rejection to claim 1 above]** wherein said point-to-point serial-signal

interconnect is a Serial ATA IO device interconnect **(see fig.6 and paragraph 0019)**.

19.   As per **claims 3, 26, 86, and 92**, Bicknell discloses wherein a said at least one PSD

comprises a SATA PSD **(see paragraph 0019).**

20.   As per **claims 4, 30, 87, and 93**, Bicknell discloses wherein a said at least one PSD

comprises a PATA PSD and a serial-to-parallel converter **(data interface 144 of fig. 6)** is

provided between said device-side IO device interconnect controller and said PATA PSD **(see**

paragraph 0030).

21.   As per **claims 5 and 31**, Bicknell further discloses comprising a detachable canister

attached to said storage virtualization controller for containing a said at least one PSD therein

(see paragraph 0019, which discloses "Disc drive 106 can preferably be removed without

disturbing the operation of subsystem 100").

22.   As per **claims 6 and 32**, Bicknell discloses wherein a said at least one PSD can be

detached from said storage virtualization controller when said storage virtualization controller is

on-line **(see paragraph 0019, which discloses "Disc drive 106 can preferably be removed**

without disturbing the operation of subsystem 100").

23.   As per **claims 7 and 33**, Bicknell discloses wherein a said at least one

PSD can be attached to said storage virtualization controller when said storage

virtualization controller is on-line **(see paragraph 0030).**

24.   As per **claims 8 and 28**, Bicknell discloses wherein said storage virtualization controller

is configured to define at least one logical media unit consisting of sections of at least one said

PSD **(paragraph 0007 of the applicant's specification discloses "*A RAID controller combines*

sections on one or multiple physical direct access storage devices (DASDs), the combination of

which is determined by the nature of a particular RAID level, to form logical media units

"; similarly, Bicknell discloses, in fig. 6, a RAID controller combines sections on one or

multiple physical direct access storage devices)**.

25.   As per **claims 9 and 23**, Bicknell discloses wherein said storage virtualization controller

comprises: a central processing circuitry **(micro-computer 222 of fig. 8)** for performing IO

operations in response to said IO requests of said host entity **(see paragraph 0028)**; at least one

IO device interconnect controller **(controller 1)** coupled to said central processing circuitry **(see**

fig. 8); at least one host-side IO device interconnect port **(the host computer connector of fig.**

6) provided in a said at least one IO device interconnect controller for coupling to said host entity

(see paragraph 0017); and at least one device-side IO device interconnect port **(interface 200 of**

fig. 8) provided in a said at least one IO device interconnect controller for coupling to a said at

least one physical storage device **(see paragraph 0026)**.

26.   As per **claims 10 and 24**, Bicknell discloses wherein a said host-side IO device

interconnect port and a said device-side IO device interconnect port are provided in the same IO

device interconnect controller **(see fig. 6)**.

27.   As per **claims 11 and 25**, Bicknell discloses wherein a said host-side IO device interconnect port and a said device-side IO device interconnect port are provided in different IO device interconnect controllers **(see fig. 6)**.

28.   As per **claims 12 and 27**, Bicknell discloses wherein said storage virtualization controller comprises a plurality of host-side IO device interconnect ports each for coupling to a host-side IO device interconnect **(see fig. 6 and paragraph 0026)**.

29.   As per **claims 13 and 29**, Bicknell discloses wherein said storage virtualization controller is configured to present redundantly a logical media unit on at least two of said plurality of host-side IO device interconnect ports **(see paragraph 0019)**.

30.   As per **claims 14 and 35**, Bicknell discloses wherein at least one said host-side IO device interconnect port is Fibre Channel supporting point-to-point connectivity in target mode **(see paragraph 0030 and fig. 6)**.

31.   As per **claims 15 and 36**, Bicknell discloses wherein at least one said host-side IO device interconnect port is Fibre Channel supporting private loop connectivity in target mode **(see paragraph 0030 and fig. 6)**.

32.   As per **claims 16 and 37**, Bicknell discloses wherein at least one said host-side IO device interconnect port is Fibre Channel supporting public loop connectivity

in target mode **(see paragraph 0032 and fig. 6)**.

33.   As per **claims 20 and 41**, Bicknell discloses wherein at least one said host-side IO

device interconnect port is Serial ATA operating in target mode **(see paragraph 0019)**.

34.   As per **claim 34**, Bicknell discloses wherein said storage virtualization controller further

comprises at least one multiple-device device-side expansion port **(Midplane Card ports 209 of**

fig. 6) for accommodating an additional set of at least one PSD.

35.   As per **claims 42 and 80**, Bicknell further discloses comprising an enclosure

management services mechanism **[(MUX 208 of fig. 8), in regards to an "enclosure**

management service", the applicant discloses "*In this embodiment, an enclosure*

management service (EMS) circuitry 360 is attached to the CPC 240 for managing and

monitoring at least one of the following devices belonging to the storage virtualization

subsystem 20: power supplies, fans, temperature sensors, voltages, uninterruptible power

*supplies, batteries, LEDs, audible alarms, PSD canister locks, door locks"***. Similarly, Bicknell**

discloses "The multiplexing electronics selectively opens and closes the first and second

data communication paths in response to at least one control signal (such as 218 or 220)

"see paragraph 0037. The electronics connection, as discloses, is power supplies].

36.   As per **claim 43**, Bicknell discloses wherein said enclosure management services

mechanism manages and monitors <u>at least one</u> of the following devices belonging to the storage

virtualization subsystem: power supplies, fans, temperature sensors, voltages, uninterruptible

power supplies, batteries, LEDs, audible alarms, PSD canister locks, door locks **(see paragraph**

0031).

37.   As per **claim 44**, Bicknell discloses wherein said enclosure management services

mechanism is configured to support direct-connect EMS configuration **(see fig. 8)**.

38.   As per **claim 45**, Bicknell discloses wherein said enclosure management services

mechanism is configured to support device-forwarded EMS configuration **(see fig. 8)**.

39.   As per **claims 46, 81, 82, and 83**, Bicknell discloses wherein said enclosure management

services mechanism is configured to support direct-connect EMS configuration and device-

forwarded EMS configuration **(see fig. 8)**.

40.   As per **claim 50**, Bicknell discloses wherein said EMS mechanism further comprises

status-monitoring circuitry to communicate with said storage virtualization controller **(see**

paragraph 0031).

41.   As per **claims 88 and 94**, Bicknell discloses wherein the step of performing said

at least one IO operation comprises issuing at least one device-side IO request to said device-side

IO device interconnect controller and reformatting said device-side IO request and

accompanying IO data into at least one data packet for transmission **(see paragraph 0030).**

42.   **Claims 1, 21, 78, and 90,** are rejected under 35 U.S.C. 102(e) as being anticipated by

Johnson et al. (US pub. 2003/0033477).

43.   As per **claims 1, 21, 78, and 90,** Johnson discloses "A storage virtualization computer

system **(system 200 of fig. 2)** comprising: a host entity for issuing IO requests **(System 204 of**

fig. 2); an external storage virtualization controller **(RAID Controller 202)** coupled to said host

entity for executing IO operations in response to said IO requests **(see fig. 2 and paragraph**

0028); and at least one physical storage device (PSD) **(Disc drive 1)**, each coupled to the storage

virtualization controller through a point-to-point serial-signal interconnect **(see fig. 2 and**

paragraph 0023), for providing storage to the storage virtualization computer system through

the storage virtualization controller **(see paragraph 0027).**

See rejection above and bellow for all other claims

44.   **Claims 1, 21, 78, and 90,** are rejected under 35 U.S.C. 102(e) as being anticipated by

Applicant Admitted Prior Art (AAPA).

45.   As per **claims 1, 21, 78, and 90,** AAPA discloses "A storage virtualization computer

system **(storage system of fig. 1)** comprising: a host entity for issuing IO requests **(see**

paragraph 0005); an external storage virtualization controller **(see paragraph 0006 and fig. 1)**

coupled to said host entity for executing IO operations in response to said IO requests **(see fig. 1**

and paragraph 0006); and at least one physical storage device (PSD) **(see disc drive in**

paragraph 0008), each coupled to the storage virtualization controller through a point-to-point

serial-signal interconnect **(see fig. 1 and paragraph 0008)**, for providing storage to the storage

virtualization computer system through the storage virtualization controller **(see paragraph**

0008).

See rejection above and bellow for all other claims

Claim Rejections - 35 USC § 103

46.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

47.   **Claims 17, 19, 38, 40, 47, 48, 84, and 85**, are rejected under 35 U.S.C. 103(a) as being

unpatentable over Bicknell et al. (US pub. 2003/0193776) in view of Rabinovitz et al. (US pat.

6,483,107).

48.   As per **claims 17, 19, 38, and 40**, Bicknell discloses "The storage virtualization

subsystem of claim 23," **[See rejection to claim 23 above]**, including at least one said host-side

IO device interconnect port is parallel/serial operating in target mode **(see paragraph 0030)**, but

fails to disclose expressly a SCSI.

Rabinovitz discloses a SCSI in a storage virtualization subsystem **(col. 16, line 49)**.

Bicknell et al. (US pub. 2003/0193776) and Rabinovitz et al. (US pat. 6,483,107) are

analogous art because they are from the same field of endeavor of peripheral storage devices.

At the time of the invention it would have been obvious to a person of ordinary skill in

the art to modify a disc storage subsystem that allows continued access to data stored in its

Advanced Technology Architecture (ATA) disc drives in the event of a controller failure as

described by Bicknell and a canister and a casing of a computer peripheral enclosure as taught by

Rabinovitz.

The motivation for doing so would have been because Rabinovitz teaches that a SCSI

allow more connecting storage devices **(see col. 16, lines 43-54).**

Therefore, it would have been obvious to combine Rabinovitz et al. (US pat. 6,483,107)

with Bicknell et al. (US pub. 2003/0193776) for the benefit of creating the storage virtualization

subsystem to obtain the invention as specified in claims 17 and 38.

49.   As per **claims 47 and 84**, Bicknell discloses "The storage virtualization subsystem of

claim 42," **[See rejection to claim 42 above]**, including the enclosure management services

mechanism **(MUX 208 of fig. 8)**, but fails to disclose expressly wherein said enclosure

management services mechanism is configured to support SES enclosure management services

protocol.

Rabinovitz discloses a SES in a storage virtualization subsystem **(col. 17, line 23).**

Bicknell et al. (US pub. 2003/0193776) and Rabinovitz et al. (US pat. 6,483,107) are

analogous art because they are from the same field of endeavor of peripheral storage devices.

At the time of the invention it would have been obvious to a person of ordinary skill in

the art to modify a disc storage subsystem that allows continued access to data stored in its

Advanced Technology Architecture (ATA) disc drives in the event of a controller failure as

described by Bicknell and a canister and a casing of a computer peripheral enclosure as taught by

Rabinovitz.

The motivation for doing so would have been because Rabinovitz teaches that a SES

allow a user to monitor the enclosure from a remote location **(see col. 17, lines 29-31).**

Therefore, it would have been obvious to combine Rabinovitz et al. (US pat. 6,483,107)

with Bicknell et al. (US pub. 2003/0193776) for the benefit of creating the storage virtualization

subsystem to obtain the invention as specified in claims 47 and 84.

50.   As per **claims 48 and 85**, the combination of Bicknell and Rabinovitz discloses "The

storage virtualization subsystem of claim 42," **[See rejection to claim 42 above]** Bicknell

discloses the enclosure management services mechanism, and Rabinivitz further discloses the

SAF-TE, **(see col. 17, line 29).**

51.   **Claims 18, 39, 49, 51, 52, and 53**, are rejected under 35 U.S.C. 103(a) as being

unpatentable over Bicknell et al. (US pub. 2003/0193776) in view of Colton (US pub.

2005/0089027).

52.   As per **claims 18 and 39**, Bicknell discloses "The computer system of claim 9," **[See**

rejection to claim 9 above], including at least one said host-side IO device interconnect port

(see fig. 6), but fails to disclose expressly wherein at least one said host-side IO device

interconnect port is ethernet supporting the iSCSI protocol operating in target mode.

Colton discloses ethernet supporting the iSCSI protocol operating in target mode **(see fig.**

11 and paragraph 1487, which discloses internet SCSI in an Ethernet network).

Bicknell et al. (US pub. 2003/0193776) and Colton (US pub. 2005/0089027) are

analogous art because they are from the same field of endeavor of data transfer.

At the time of the invention it would have been obvious to a person of ordinary skill in

the art to modify a disc storage subsystem that allows continued access to data stored in its

Advanced Technology Architecture (ATA) disc drives in the event of a controller failure as

described by Bicknell and a system and method for transferring data optically via an intelligent

optical switching network as taught by Colton.

The motivation for doing so would have been because Colton teaches that **"The Sun

server(s) running Oracle should have a minimum of 2 high-speed SCSI disk drives to

ensure adequate performance" (see paragraph 1487).**

Therefore, it would have been obvious to combine Colton (US pub. 2005/0089027) with

Bicknell et al. (US pub. 2003/0193776) for the benefit of creating the computer system to obtain

the invention as specified in claims 18 and 39.

53.   As per **claims 49, 51, and 53**, the combination of Bicknell and Colon discloses "The

storage virtualization subsystem of claim 42," **[See rejection to claim 42 above]** Bicknell

discloses the enclosure management services mechanism and a storage virtualization controller

(see fig. 8), and Colon further discloses 12C latches, **(see fig. 11).**

54.   As per **claim 52**, the combination of Bicknell and Colon discloses "The storage

virtualization subsystem of claim 42," **[See rejection to claim 42 above]** Bicknell discloses the

enclosure management services mechanism as a micro-computer **(see fig. 8)**, and Colon further

discloses a CPU for running a program, **(see paragraph 0810 and fig. 11).**

55.   **Claims 89 and 95**, are rejected under 35 U.S.C. 103(a) as being unpatentable

over Bicknell et al. (US pub. 2003/0193776) in view of Johnson et al. (US pub. 2003/0033477).

56.   As per **claims 89 and 95**, Bicknell discloses "The method of claim 88," **[See rejection to**

claim 88 above], but fails to disclose expressly "wherein said data packet comprises a start

segment at the beginning indicating the start of said data packet, an end segment at

the end indicating the end of the data packet, a payload data segment containing actual IO

information to transmit through the device-side IO device interconnect, and a check data segment

containing check codes derived from said payload data for checking the correctness of said

payload data after transmission"

Johnson discloses "wherein said data packet comprises a start segment at the beginning

indicating the start of said data packet, an end segment at the end indicating the end of the data

packet, a payload data segment containing actual IO information to transmit through the device-

side IO device interconnect, and a check data segment containing check codes derived from said

payload data for checking the correctness of said payload data after transmission" **(see**

paragraph 0025).

Bicknell et al. (US pub. 2003/0193776) and Johnson et al. (US pub. 2003/0033477) are

analogous art because they are from the same field of endeavor of peripheral storage devices.

At the time of the invention it would have been obvious to a person of ordinary skill in

the art to modify a disc storage subsystem that allows continued access to data stored in its

Advanced Technology Architecture (ATA) disc drives in the event of a controller failure as

described by Bicknell and a system generally relates to the field of information handling systems

including computer systems and related devices using redundant array of independent disks

(RAID) data storage systems and, more particularly, to a system and method for RAID striped

data transfer

as taught by Johnson.

The motivation for doing so would have been because Johnson teaches that " **In general,**

each SGL entry contains an address and a length and may contain flags, such as Size of

Address (i.e., 32-bit or 64-bit), End of List Reached, direction of data transfer, and the

like" (see paragraph 0024).

Therefore, it would have been obvious to combine Johnson et al. (US pub.

2003/0033477) with Bicknell et al. (US pub. 2003/0193776) for the benefit of creating the

computer system to obtain the invention as specified in claims 89 and 95.

VII. <u>RELEVANT ART CITED BY THE EXAMINER</u>

1.   The following prior art made of record and not relied upon is cited to establish the level

of skill in the applicant's art and those arts considered reasonably pertinent to applicant's

disclosure. See **MPEP 707.05(c).**

2.   The following reference teaches a storage virtualization computer system.

U.S. PATENT NUMBER

US 2005/0223269

US 2005/0204078

US 2005/0160319

US 2005/0120170

US 2004/0210584

US 2004/0143694

US 7,065,661

VIII. CLOSING COMMENTS

Conclusion

a. STATUS OF CLAIMS IN THE APPLICATION

1.   The following is a summary of the treatment and status of all claims in the application as

recommended by **M.P.E.P. 707.07(i)**:

a(1) CLAIMS REJECTED IN THE APPLICATION

2.   Per the instant office action, claims 1-53, and 78-95 have received a first action on the

merits and are subject of a first action non-final.

b. DIRECTION OF FUTURE CORRESPONDENCES

3.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Ernest Unelus whose telephone number is (571) 272-8596. The

examiner can normally be reached on Monday to Friday 9:00 AM to 5:00 PM.

IMPORTANT NOTE

4.   If attempts to reach the above noted Examiner by telephone is unsuccessful, the

Examiner's supervisor, Mr. Fritz M. Fleming, can be reached at the following telephone number:

Area Code (571) 272-4145. The fax phone number for the organization where this application or

proceeding is assigned is 571-273-8300. Information regarding the status of an application may

be obtained from the Patent Application Information Retrieval (PAIR) system. Status

information for published applications may be obtained from either Private PAIR or Public

PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have

questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at

866-217-9197 (toll-free).

December 13, 2006   Ernest Unelus
                                                     Examiner
                                                     Art Unit 2181

                                                     FRITZ FLEMING
                                               SUPERVISORY PATENT EXAMINER
                                                  TECHNOLOGY CENTER 2100

                                                     12/22/2006